

REMARKS/ARGUMENTS

Claims 1-20 are pending, claims 9-15 having been withdrawn from consideration and new claims 16-20 having been added.

Claims 1-8 were rejected under 35 U.S.C. §102(e) as being anticipated by Ma, U.S. Patent No. 6,713,859. Reconsideration of the rejection is respectfully requested.

Independent claim 1 provides, in part, for, “[a] semiconductor device comprising: ... a multi-level interconnect structure formed on said pad-mounting surface, and including a first insulating layer formed on said pad-mounting surface and formed with a plurality of first holes, ... a plurality of first level conductive horizontal bodies, each of which has an end section that fills a respective one of said first holes ... a second insulating layer formed on said first insulating layer and formed with a plurality of first holes, ... and a plurality of second level conductive vertical bodies, each of which fills a respective one of said first holes”

In contrast, the Examiner states that, in Ma, the horizontal plurality of first level conductive bodies is indicated by reference numeral 124, (Office Action, page 3, line 7), and the plurality of second level conductive vertical bodies is indicated by reference numeral 134, (Office Action, page 3, line 16). Furthermore, the Examiner contends that the plurality of first holes in first insulating layer 118 is designated by reference numeral 122, citing Fig. 1D in Ma, (Office Action, page 3, lines 4-5). It is clear, however, that alleged first level conductive bodies 124 do not fill respective ones of the plurality of first holes 122 since alleged second insulating layer 126 also fills respective ones of the plurality of first holes 122, see Figs. 1E, 1G in Ma. Likewise, each of the alleged plurality of second level conductive vertical bodies 134 in Ma do not fill a respective one of the presumed first holes 128 in alleged second insulating layer 126 since a portion of alleged third insulating layer 136 is also present in holes 128, see Figs. 1H, 1J in Ma.

Since each of claims 2-8 is directly or indirectly dependent upon independent claim 1, each of claims 2-8 is allowable over Ma for the same reasons recited above with respect to the allowability of independent claim 1 over Ma.

Independent claim 16 provides, in part, for, “[a] semiconductor device comprising: ... a multi-level interconnect structure formed on said pad-mounting surface, and including ... a plurality of first level conductive horizontal bodies, each of which extends from a respective one of said first bonding pads through said first insulating layer, and each of which has one end

connected to a respective one of said first bonding pads, and an opposite end that is offset from the respective one of said first bonding pads, and a plurality of first level conductive vertical bodies, each of which extends in a direction normal to the horizontal plane from a respective one of said second bonding pads through said first insulating layer, and each of which has one end connected to a respective one of said second bonding pads, and an opposite end that is aligned with the respective one of said second bonding pads in said normal direction; wherein each of said first level conductive vertical bodies has a projecting area, projected on the horizontal plane, that is disposed within a boundary of the respective one of said second bonding pads." The features of independent claim 16 related to the plurality of first level conductive vertical bodies are supported in the specification, for example, on page 7, lines 12-20, and in the drawings, for example, in Figs. 3-4.

The features of independent claim 16 related to the plurality of first level conductive vertical bodies are not disclosed, taught, or suggested by Ma. Furthermore, the inclusion of the first level conductive horizontal bodies and first level conductive vertical bodies, as claimed in independent claim 16, allows the reduction of the surface area required for the build-up of the trace layer. In Ma, however, an encapsulation material 112 is required to provide surface area for the build-up of trace layers, thereby resulting in an increase in the undesired footprint.

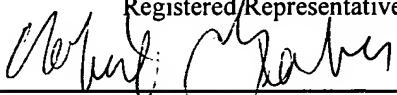
Since each of claims 17-20 is directly or indirectly dependent upon independent claim 16, each of claims 17-20 is allowable over Ma for the same reasons recited above with respect to the allowability of independent claim 16 over Ma.

In view of the foregoing amendments and remarks, the allowance of claims 1-8 and 16-20 is respectfully requested.

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Name of applicant, assignee or
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Signature

August 15, 2006

Date of Signature

RCF/MIM:lac

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Respectfully submitted,



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